



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

#16
10/27/03
Blue
3073

Application of: F. BOREDAUX *et al.*

Confirmation No.: 9894

Application No.: 09/991,746

Art Unit: 1755

Filed: November 26, 2001

Examiner: K. Group

For: GLASS SHEET DESIGNED
TO BE HEAT TEMPERED

Attorney Docket No.: 3633-509

BRIEF ON APPEAL FEE TRANSMITTAL

RECEIVED

OCT 30 2003

TC 1700

Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Sir:

An original and two copies of the Applicant's Brief on Appeal in the above-
entitled application are submitted herewith. The item(s) checked below apply:

☒ The Brief filing fee is estimated to be \$330.00.

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Please charge the required Brief filing fee to Pennie & Edmonds LLP Deposit
Account No. 16-1150. A copy of this sheet is enclosed.

Date: October 27, 2003

Respectfully Submitted,

Seth A. Watkins
For: Victor N. Balancia

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Enclosure



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#16
10/31/03
P. J. J. J.
1/13

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BRIEF ON APPEAL

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Sir:

Pursuant to the provisions of 37 C.F.R. § 1.191 and § 1.192, this is an appeal from the Examiner's final rejection dated November 26, 2002, rejecting claims 1-6 and 9-15 of the above-identified application. Appellant timely filed a Notice of Appeal on March 26, 2003. An original and two copies of this Brief are submitted herewith.

REAL PARTY IN INTEREST - 37 C.F.R. § 1.192(C)(1)

The real party in interest is Saint-Gobain Glass France having a place of business at 18 Avenue d'Alsace, 92400 Courbevoie, France. Saint-Gobain Glass France is the assignee of the present application by virtue of an assignment recorded February 29, 2000 at Reel 010608, Frame 0284 in the name of Saint-Gobain Vitrage. Saint-Gobain Vitrage changed its name to Saint-Gobain Glass France, as recorded on November 16, 2001 at Reel 012310, Frame 0438.

RELATED APPEALS AND INTERFERENCES - 37 C.F.R. § 1.192(C)(2)

There are no related appeals or interferences that will directly affect or be directly affected by or have a bearing on the Board's decision in this appeal.

STATUS OF CLAIMS - 37 C.F.R. § 1.192(C)(3)

Claims 1-15 are pending in this application. Claims 1-6 and 9-15 stand rejected and are the subject of this appeal. The appealed claims are presented in Appendix A

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attached hereto. Claims 7 and 8 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

STATUS OF AMENDMENTS - 37 C.F.R. § 1.192(C)(4)

In response to the final Office Action, an Amendment was filed on March 26, 2003 in which none of the claims were amended. The Examiner stated in an Advisory Action mailed on March 31, 2003 that “[t]he amendment filed 3-26-03 under 37 CFR 1.116 in reply to the final rejection has been entered, but is not deemed to place the application in condition for allowance.” No amendments currently remain as “unentered” by the Examiner.

SUMMARY OF THE INVENTION - 37 C.F.R. § 1.192(C)(5)

This invention relates to glass sheets intended to be thermally toughened for use, for example, in motor vehicles. (*See, e.g.*, specification at 1:3-5). The glass sheets produced from the compositions according to the invention allow so-called “safety” thermal toughening for thicknesses of less than 2.5 mm using standard devices. (*Id.*, 9:11-16). The production of thermally toughened thin glass sheets, i.e. those having a thickness of less than 2.5 mm, is important because motor-vehicle manufacturers are increasingly desiring to limit the weight corresponding to the glazing, while at the same time the glass area of motor vehicles is increasing. (*Id.*, 1:6-14). A reduction in the thickness of the glass sheets is therefore needed in order to meet these new requirements. (*Id.*, 1:14-16).

Thus, a glass sheet intended to be thermally toughened is provided, the matrix of which is of the silica-soda-lime type and has an expansion coefficient α of greater than $100 \times 10^{-7} \text{ K}^{-1}$, a Young's modulus E of greater than 60 GPa and a thermal conductivity k of less than 0.9 W/m.K. (*Id.*, 3:11-16).

ISSUES ON APPEAL - 37 C.F.R. § 1.192(C)(6)

(1) Whether claims 1-6, 14 and 15 are anticipated, within the meaning of 35 U.S.C. § 102(a or e), or in the alternative obvious, within the meaning of 35 U.S.C. § 103(a), over U.S. Patent No. 5,858,897 to Maeda et al. (“Maeda ‘897 patent”);

(2) Whether claims 1-6 and 9-14 are anticipated, within the meaning of 35 U.S.C. § 102(b), or in the alternative obvious, within the meaning of 35 U.S.C. § 103(a), over U.S. Patent No. 5,362,689 to Morimoto *et al.* (“Morimoto ‘689 patent”); and

(3) Whether claims 1-6, 9, 11 and 13 are anticipated, within the meaning of 35 U.S.C. § 102(b), or in the alternative obvious, within the meaning of 35 U.S.C. § 103(a), over U.S. Patent No. 5,618,763 to Frank *et al.* ("Frank '763 patent").

GROUPING OF CLAIMS - 37 C.F.R. § 1.192(C)(7)

For purposes of this appeal and without prejudice to showing the patentability of the dependent claims, the claims are grouped as follows:

Claims 1-6 and 9-15 stand or fall together.

ARGUMENT

A. Claims 1-6, 14 and 15 are not anticipated or obvious over the Maeda '897 patent.

Claims 1-6, 14 and 15 were rejected under 35 U.S.C. § 102(a or e) as being anticipated, or in the alternative under 35 U.S.C. § 103(a) as being obvious over the Maeda '897 patent. The final Office Action stated:

¶ Applicants argue that the prior art references fail to teach the recited properties in the instant claims. This is not persuasive because identical compositions may not have mutually exclusive properties. In re Spada, 15 USPQ2d 1655, 1658 (Fed. Circ. 1990).

¶ The prior art reference a [*sic.*] teach examples that fall squarely within the ranges set forth in the rejected claims. Claims 1-6, 13 fail to set forth any composition.

(Office Action, November 26, 2002, Page 3, lines 1-5).

Applicants' invention, as presented in independent claim 1, is directed to a glass sheet intended to be thermally toughened, comprising a silica-soda matrix, wherein said sheet has an expansion coefficient α of greater than $100 \times 10^{-7} \text{ K}^{-1}$, a Young's modulus E of greater than 60 GPa and a thermal conductivity k of less than 0.9 W/m.K.

For the reasons that follow, Applicants respectfully submit that the Maeda '897 patent does not anticipate pending independent claim 1, or claims 2-6, 14 or 15 that depend therefrom.

1. The Maeda '897 patent does *not* "teach examples that fall squarely within the ranges set forth in the rejected claims."

To anticipate a claim under 35 U.S.C. § 102, a single prior art reference must disclose each and every element of the claimed invention in a manner sufficient to enable one

skilled in the art to reduce the invention to practice, thus placing the invention in possession of the public. *W.L. Gore & Assocs., Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1554 (Fed. Cir. 1983); *In re Donohue*, 766 F.2d 531, 533 (Fed. Cir. 1985); *Corning Glass Works v. Sumitomo Electric*, 868 F.2d 1251, 1255-56 (Fed. Cir. 1989). The exclusion of a claimed element, no matter how insubstantial or obvious, from a prior art reference is enough to negate anticipation under 35 U.S.C. § 102. *Connell v. Sears, Roebuck & Co.*, 722 F.2d 1542, 1548 (Fed. Cir. 1983).

The Maeda '897 patent is directed to a glass composition for a substrate. The Examiner cited to example 8 of Maeda. *See* Office Action, May 23, 2002, page 3 (incorporated by reference in the final Office Action of November 26, 2002 as applied "for reasons of record").

As shown in the table below, Applicants' pending claim 1 is directed to a glass sheet intended to be thermally toughened, comprising a silica-soda matrix, with the sheet meeting three particular characteristics related to an expansion coefficient, Young's modulus, and thermal conductivity. Example 8 of the Maeda '897 patent fails to disclose each of these requirements.

Applicants' Silica-Soda Matrix of Claim 1	Expansion coefficient α of greater than $100 \times 10^{-7} \text{ K}^{-1}$	Young's modulus E of greater than 60 GPa	Thermal conductivity k of less than 0.9 W/m.K
Example 8 of the Maeda '897 patent	NO Example 8 of Maeda has an average thermal expansion coefficient of <u>83</u> $\times 10^{-7}/^{\circ}\text{C}$.	NO DISCLOSURE BY MAEDA	NO DISCLOSURE BY MAEDA

Thus, Example 8 of the Maeda '897 patent fails to have an expansion coefficient α of *greater than* $100 \times 10^{-7} \text{ K}^{-1}$ as required by presently pending claim 1. Moreover, Maeda fails to disclose a Young's modulus and thermal conductivity for the glass composition.

"It is incumbent upon the examiner to identify wherein each and every facet of the claimed invention is disclosed in the applied reference." *Ex parte Levy*, 17 U.S.P.Q.2d 1461, 1462 (B.P.A.I. 1990), *citing Lindemann Maschinenfabrik GmbH v. American Hoist and Derrick*, 730 F.2d 1452 (Fed. Cir. 1984). This is a burden that the Examiner simply has not met.

2. Claims 1-6, 14 and 15 are not obvious over the Maeda '897 patent.

A prima facie case of obviousness is established by showing that some objective teaching or suggestion in the applied prior art taken as a whole and/or knowledge generally available to one of ordinary skill in the art would have led that person to the claimed invention, including each and every limitation of the claims, without recourse to the teachings in Applicant's disclosure. *See generally In re Oetiker*, 977 F.2d 1443, 1447-48 (Fed. Cir. 1992) (Nies, J., concurring).

Notwithstanding that the Examiner has failed to allege any inherency in the Maeda '897 patent of the recited characteristics in pending claim 1, the Examiner's rejection concomitantly is not predicated upon any theory that one having ordinary skill in the art would have been led to employ the glass composition disclosed by Maeda to produce the glass sheet intended to be thermally toughened as claimed by Applicants. It is Applicants' position that the Maeda '897 patent fails to provide any objective teaching or suggestion leading one of ordinary skill in the art to the claimed invention. Example 8 of the Maeda '897 patent, as cited by the Examiner, provides an expansion coefficient α of $83 \times 10^{-7}/^{\circ}\text{C}$ that is **less than** the minimum expansion coefficient of $100 \times 10^{-7} \text{ K}^{-1}$ required by independent claim 1. Further, example 8 of Maeda does not even reference a particular Young's modulus or thermal conductivity. It is unclear to Applicants how Maeda has any relevancy to pending claims 1-6, 14 and 15.

B. Claims 1-6 and 9-14 are not anticipated or obvious over the Morimoto '689 patent.

Claims 1-6 and 9-14 were rejected under 35 U.S.C. § 102(b) as being anticipated, or in the alternative under 35 U.S.C. § 103(a) as being obvious over the Morimoto '689 patent.

1. The Morimoto '689 patent does *not* "teach examples that fall squarely within the ranges set forth in the rejected claims."

The Morimoto '689 patent is directed to infrared and ultraviolet ray absorbing glass. The Examiner cited to Comparative Example 2, column 9 of Morimoto. *See Office Action*, May 23, 2002, page 3 (incorporated by reference in the final Office Action of November 26, 2002 as applied "for reasons of record").

As shown again in the table below, Applicants' pending claim 1 is directed to a glass sheet intended to be thermally toughened, comprising a silica-soda matrix, with the

sheet meeting three particular characteristics related to an expansion coefficient, Young's modulus, and thermal conductivity. Comparative Example 2 of the Morimoto '689 patent fails to disclose *any* of these requirements:

Applicants' Silica-Soda Matrix of Claim 1	Expansion coefficient α of greater than $100 \times 10^{-7} \text{ K}^{-1}$	Young's modulus E of greater than 60 GPa	Thermal conductivity k of less than 0.9 W/m.K
Comparative Ex. 2 of the Morimoto '689 patent	NO DISCLOSURE BY MORIMOTO	NO DISCLOSURE BY MORIMOTO	NO DISCLOSURE BY MORIMOTO

Thus, Morimoto completely fails to disclose a glass sheet with an expansion coefficient, Young's modulus, or thermal conductivity as required by presently pending claim 1.

2. Claims 1-6 and 9-14 are not obvious over the Morimoto '689 patent.

Again, notwithstanding that the Examiner has failed to allege any inherency in the Morimoto '689 patent of the recited characteristics in pending claim 1, the Examiner's rejection concomitantly is not predicated upon any theory that one having ordinary skill in the art would have been led to employ the glass composition disclosed by Morimoto to produce the glass sheet intended to be thermally toughened as claimed by Applicants. It is Applicants' position that the Morimoto '689 patent fails to provide any objective teaching or suggestion leading one of ordinary skill in the art to the claimed invention. Comparative example 2 of Morimoto does not even reference a particular expansion coefficient, Young's modulus or thermal conductivity. It is unclear to Applicants how Morimoto has any relevancy to pending claims 1-6 and 9-14.

C. Claims 1-6, 9, 11 and 13 are not anticipated or obvious over the Frank '763 patent.

Claims 1-6, 9, 11 and 13 were rejected under 35 U.S.C. § 102(b) as being anticipated, or in the alternative under 35 U.S.C. § 103(a) as being obvious over the Frank '763 patent.

1. The Frank '763 patent does *not* "teach examples that fall squarely within the ranges set forth in the rejected claims."

The Frank '763 patent is directed to alkali-zinc-silicate glass-ceramics and glasses. The Examiner cited to Table 1 of Frank. *See* Office Action, May 23, 2002, page 4

(incorporated by reference in the final Office Action of November 26, 2002 as applied “for reasons of record”).

As shown in the table below, Applicants’ pending claim 1 is directed to a glass sheet intended to be thermally toughened, comprising a silica-soda matrix, with the sheet meeting three particular characteristics related to an expansion coefficient, Young’s modulus, and thermal conductivity. Although Frank discloses compositions that fall within Applicants’ claimed expansion coefficient, no disclosure is made concerning either the Young’s modulus or thermal conductivity of any compositions disclosed therein:

Applicants’ Silica-Soda Matrix of Claim 1	Expansion coefficient α of greater than $100 \times 10^{-7} \text{ K}^{-1}$	Young’s modulus E of greater than 60 GPa	Thermal conductivity k of less than 0.9 W/m.K
Table I/II of the Frank ‘763 patent	✓	NO DISCLOSURE BY FRANK	NO DISCLOSURE BY FRANK

Thus, Frank completely fails to disclose a glass sheet with a Young’s modulus or thermal conductivity as required by presently pending claim 1.

2. Claims 1-6, 9, 11 and 13 are not obvious over the Frank ‘763 patent.

Again, notwithstanding that the Examiner has failed to allege any inherency in the Frank ‘763 patent of the recited characteristics in pending claim 1, the Examiner’s rejection concomitantly is not predicated upon any theory that one having ordinary skill in the art would have been led to employ the glass composition disclosed by Frank to produce the glass sheet intended to be thermally toughened as claimed by Applicants. It is Applicants’ position that the Frank ‘763 patent fails to provide any objective teaching or suggestion leading one of ordinary skill in the art to the claimed invention. Table I/II of Frank does not even reference a particular Young’s modulus or thermal conductivity. It is unclear to Applicants how Frank has any relevancy to pending claims 1-6, 9, 11 or 13.

D. The rejected claims are commensurate in scope with the disclosure.

The final Office Action stated:

The disclosure has support for specific compositions which arrive at the claimed properties. The claims are not considered commensurate in scope with the disclosure. Applicants have not shown by way of tangible evidence commensurate in scope with the claims (which the instant disclosure is not) that the prior art compositions do in fact have different properties.

(Office Action, November 26, 2002, Page 3, lines 5-9).

Applicants note that *none* of the pending claims are finally rejected under 35 U.S.C. § 112, ¶ 1 because of any alleged failure of the specification to enable a person skilled in the relevant art to make and use the invention commensurate with the scope of the claims. For the record, Applicants respectfully disagree with the Examiner's characterization. However, no argument is presented herein because no § 112, ¶ 1 rejection has been made by the Examiner.

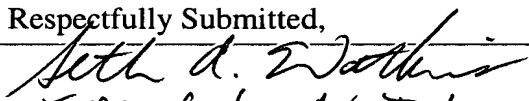
CONCLUSION

Applicants respectfully submit that the final rejections of claims 1-6 and 9-15 are in error and should be reversed.

A fee for an extension of time is believed to be due for this submission and a petition for extension of time is submitted concurrently herewith. A Brief on Appeal Fee Transmittal sheet also is submitted concurrently herewith. Should any additional fees be required, please charge such fees to Pennie & Edmonds LLP Deposit Account No. 16-1150.

Date: October 27, 2003

Respectfully Submitted,


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Enclosures

APPENDIX A - APPEALED CLAIMS

1. A glass sheet intended to be thermally toughened, comprising a silica-soda matrix, wherein said sheet has an expansion coefficient α of greater than $100 \times 10^{-7} \text{ K}^{-1}$, a Young's modulus E of greater than 60 GPa and a thermal conductivity k of less than 0.9 W/m.K.

2. The glass sheet of claim 1, wherein said sheet has a Poisson's ratio of greater than 0.21.

3. The glass sheet of claim 2, wherein said sheet has a specific heat of greater than 740 J/kg.K.

4. The glass sheet of claim 1, wherein said sheet has a specific heat of greater than 740 J/kg.K.

5. The glass sheet of claim 1, wherein said sheet has a density of greater than 2520 kg/m³.

6. The glass sheet of claim 1, wherein said sheet satisfies the relationship:

$$\alpha \cdot E / K > 8000.$$

9. The glass sheet of claim 1, wherein said matrix comprises, in percentages by weight, Na₂O and optionally K₂O in amounts which satisfy the following relationship:

$$\text{Na}_2\text{O} + \text{K}_2\text{O} > 17\%.$$

10. The glass sheet of claim 1, wherein said matrix comprises, in percentages by weight, the following constituents:

SiO ₂	45-69%
Al ₂ O ₃	0-14%
CaO	0-22%
MgO	0-10%
Na ₂ O	6-24%

K ₂ O	0-10%
BaO	0-12%
B ₂ O ₃	0-6%
ZnO	0-10%

and satisfies the relationships:

- (a) $\text{Na}_2\text{O} + \text{K}_2\text{O} > 17\%$, and
- (b) $\text{Na}_2\text{O} + \text{K}_2\text{O} + \text{CaO} > 29\%$ when at least one of $\text{Na}_2\text{O} > 18\%$, $\text{K}_2\text{O} > 5\%$, and $\text{Al}_2\text{O}_3 < 3\%$.

11. The glass sheet of claim 9, wherein said matrix comprises, in percentages by weight, at least one of TiO₂ and Al₂O₃ in amounts which satisfy the relationship:

$$\text{TiO}_2 + \text{Al}_2\text{O}_3 < 3\%.$$

12. The glass sheet of claim 1, wherein said matrix comprises, in percentages by weight, at least one of Na₂O, K₂O, CaO, and Al₂O₃ in amounts which satisfy the following relationships:

- (a) $\text{Na}_2\text{O} + \text{K}_2\text{O} > 17\%$, and
- (b) $\text{Na}_2\text{O} + \text{K}_2\text{O} + \text{CaO} > 29\%$ when at least one of $\text{Na}_2\text{O} > 18\%$, $\text{K}_2\text{O} > 5\%$, and $\text{Al}_2\text{O}_3 < 3\%$.

13. The glass sheet according to claim 1, wherein said sheet has a thickness of less than 2.5 mm and is thermally toughened.

14. The glass sheet of claim 1, wherein said matrix comprises Na₂O and optionally one or more of K₂O, CaO or Al₂O₃ in amounts which satisfy the following relationship:

$$\text{Na}_2\text{O} + \text{K}_2\text{O} + \text{CaO} > 29 \text{ wt}\%$$

when at least one of $\text{Na}_2\text{O} > 18 \text{ wt}\%$, $\text{K}_2\text{O} > 5 \text{ wt}\%$, and $\text{Al}_2\text{O}_3 < 3 \text{ wt}\%$.

15. The glass sheet of claim 1, wherein said matrix has a CaO content of 10.4 to 22 wt%.